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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,641	06/18/2001	Takeshi Matsumoto	13298-002001	1839
26161	7590	03/12/2004	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			STRICKLAND, JONAS N	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/883,641

Applicant(s)

MATSUMOTO ET AL.

Examiner

Jonas N. Strickland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17, 22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17 and 22 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Detailed Action is in response to the amendment filed on 11/24/03. Claims 1-15, 17, 22, and 23 are currently pending. Claim 1 has been amended. Claims 22 and 23 are newly added claims. Claims 16 and 18-21 have been cancelled.

Claim Objections

2. Claim 23 is objected to because of the following informalities: Claim 23 is dependent upon claim 20, which has been cancelled. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 7, 17 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Noda et al. (US Patent 6,350,416 B2).

An exhaust gas purifying catalyst comprising: a first catalyst component containing a refractory inorganic oxide carrying a platinum family metal, a nitrogen oxide adsorbent, and a hydrocarbon adsorbent; and a second catalyst component for the purification of nitrogen oxide; wherein said first catalyst component is disposed at a high

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concentration on the upstream side and said second catalyst component is disposed at a high concentration on the downstream side relative to the flow direction of the exhaust gas.

Noda et al. discloses a system for exhaust gas purification disposed in the exhaust pipe of an internal combustion engine, includes an adsorbent formed by loading, on a monolithic carrier, which includes a zeolite (a hydrocarbon adsorbent) containing at least one kind of ion, which includes platinum, and nickel (a nitrogen oxide adsorbent; col. 4, lines 15-50). The catalyst material may be a platinum metal (col. 4, lines 26-29). Noda et al. continues to disclose wherein the adsorbent and the catalyst located downstream thereof are produced ordinarily using separate monolithic carriers (col. 8, lines 33-51). Noda et al. also discloses wherein in producing adsorbents the noble metals may be present in a heat resistant inorganic oxide or a zeolite (col. 8, lines 58-63).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al. (US Patent 6,350,416 B2) in view of Kurokawa et al. (US Patent 5,958,826).

Applicant claims with respect to claims 4-6, 8 and 9, wherein the refractory inorganic oxide is at least one member selected from the group consisting of alumina, silica, silica-alumina, and mixtures thereof, as well as the type of zeolite, and the amount of the platinum group metal.

The teachings of Noda et al. have been discussed with respect to claims 1-3, 7, and 22, however, Noda et al. does not disclose the teachings of claims 4-6, 8, and 9.

Kurokawa et al. discloses a burned gas purifying catalyst which includes an under catalyst layer and an over catalyst layer, which includes at least one catalytic metal on the under catalyst and over catalyst layer (see abstract). The over catalyst layer (the first catalyst component) contains a platinum family metal (col. 2, lines 40-52), a nitrogen oxide adsorbent, such as barium and lanthanum (col. 3, lines 40-47), and a hydrocarbon adsorbent comprised of metal silicate (zeolite; col. 3, lines 18-25). The under catalyst layer is comprised of palladium and is used for the purification of nitrogen oxide (col. 2, line 53 – col. 3, line 17). The support may be comprised of alumina, with respect to claim 4 (col. 7, lines 30-34). The zeolite may be a Y zeolite, with respect to claims 5 and 6 (col. 5, lines 1-7). The platinum family metal may be platinum or palladium (col. 2, lines 40-42). With respect to claims 8 and 9, the amount of said platinum family metal may be 0.5 and 20 grams per liter of the catalyst (col. 6, lines 24-31).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Noda et al., based on the teachings of Kurokawa by using an alumina support, a Y zeolite, and wherein the amount of said platinum family metal may be 0.5

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and 20 grams per liter of the catalyst, because Kurokawa et al. teaches wherein a catalyst having these features is useful in purifying exhaust gas. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Kurokawa et al. with Noda et al. because while Kurokawa et al. teaches having an under catalyst layer and an over catalyst layer, Noda et al. clearly teaches wherein the adsorbent and the catalyst may be formed in one piece by loading the zeolite and a catalyst material on one monolithic carrier, as well as wherein the adsorbent and the catalyst may be produced using separate monolithic carriers (col. 8, lines 45-51). Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a process for treating exhaust gas using the features as taught by Kurokawa et al. to be similarly useful and applicable to the process taught by Noda et al., since both references are directed towards treating exhaust gases.

7. Claims 10-12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al. (US Patent 6,350,416 B2) as applied to claims 1-3, 7, 17 and 22 above, and further in view of Horiuchi et al. (US Patent 5,911,961).

Applicant claims with respect to claims 10-12, 14, and 15, specific amounts of components with respect to the catalyst. The teachings of Noda et al. have been discussed with respect to claims 1-3, 7, 17 and 22 and Noda et al. does not teach certain amounts with respect to the components of the instantly claimed exhaust purifying catalyst.

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However, Horiuchi et al. discloses a catalyst for the purification of exhaust gas. The catalyst is comprised of a platinum family metal as well as iron, which is known to adsorb nitrogen oxides (col. 3, lines 1-10). Horiuchi et al. continues to teach wherein the refractory inorganic oxide is in the range of 0.01 to 25 g/L (col. 3, lines 12-19) and wherein the catalyst composition to be deposited on the carrier may be deposited in the range of 0.1 to 200 g/L (col. 3, lines 45-48).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Noda et al. based on the teachings of Horiuchi et al., by maintaining the desired amount of the refractory inorganic oxide and the nitrogen oxide adsorbent, because Horiuchi et al. discloses a catalyst for the purification of exhaust gas comprised of a platinum metal wherein the catalyst is comprised of a refractory inorganic oxide is in the range of 0.01 to 25 g/L and wherein the catalyst composition to be deposited on the carrier may be deposited in the range of 0.1 to 200 g/L. It should be noted that the catalyst taught by Horiuchi et al. is directed towards diesel engines and diesel engines are sources for nitrogen oxides and since the catalyst as taught by Horiuchi et al. is comprised of similarly catalytic components as discussed by Noda et al., it would have been obvious to expect the catalyst as taught by Horiuchi to be able to treat nitrogen oxides, with respect to the nitrogen oxide adsorbent and the second catalyst component of claims 14 and 15.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noda et al. (US Patent 6,350,416 B2) as applied to claims 1-3, 7, 17, and 22 above, and further in view of Farrauto et al. (US Patent 5,804,155).

Applicant claims with respect to claim 13, wherein the hydrocarbon adsorbent comprises from 10 to 100 g per liter of the catalyst.

The teachings of Noda et al. have been discussed with respect to claims 1-3, 7, 17, and 22 and Noda et al., while teaching a hydrocarbon adsorbent, does not teach wherein the hydrocarbon adsorbent comprises from 10 to 100 g per liter of the catalyst.

However Farrauto et al. teaches a basic zeolite hydrocarbon adsorbent for diesel oxidation catalysts, wherein the zeolite may be present from about 0.25 to about 4.0 g/in³ (col. 7, lines 28-31) and wherein variations may be made to embodiments of the zeolite catalysts (col. 7, lines 37-41), therefore it would have been obvious to one of ordinary skill in the art to have a hydrocarbon adsorbent in the range from 10 to about 100 g/L of the catalyst, wherein the amount of zeolite may vary based on the teachings of Farrauto et al. Furthermore, it would have been obvious to one of ordinary skill in the art to combine Farrauto et al. and Noda et al., since both references teach using a zeolite hydrocarbon adsorbent on a catalyst comprised of platinum.

Response to Arguments

9. Applicant's arguments with respect to claims 1-15, 17, 22 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 5,376,610; US Patent 6,395,675 B1; US Patent 6,517,785 B2.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N. Strickland whose telephone number is 571-272-1359. The examiner can normally be reached on M-TH, 7:30-5:00, off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1700.

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Jonas N. Strickland
March 5, 2004



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